Ch.7

# • Puberty Disorders •



## 1 Precocious puberty

- D.f: puberty before age 9yrs
- more in female 4:1
- Classification:

### (A) Contrasexual:

→ The Boy show → signs of Feminization (gynecomastia)

→ Caused By → ↑↑ estrogen
- adrenal Tumors
- testicular Tumors

→ MRI, CT → essential in Early managment of these Tumors

### (B) Isosexual: signs of Virilization (e.g: Testicular enlargment)

→ (a) Central gonadotropin Dependant Type:

→ True precocious puberty

→ as a result of: premature release of (GnRH) and (FSH, LH) ⟹ premature Relase of Androgens ⟹ initiation of Spermatogenesis

→ events are same as Normal puberty But occur in eailier age:-

→ Causes:

① Idiopathic
- No abnormality in CNS
- psychological, Social Trauma
- Short Stature Due to eaily epiphyseal closure D.t → excess androgen

② CNS disorders
- Organic most Common etiology
[Hypothalamic Hamartoma]

(2)

**Idiopathic**

- MgMt:
  - exclusion of CNS abnormality
  - GnRH analog Therapy
    - GnRH analog → Bind to GnRH Receptors in Pituitary gland ⇒ Block pulsatile stimulation of these Receptors (By abnormally Release of GnRH ⇒ Stoppage of Release of gonadotropins from Pituitary.

**CNS disorders**

- The majority of children ⇒ No Neurological manifist
  - Some :- Delayed speech
    - Delayed motor Development
    - MRI → diagnostic
    - CNS Tumors:
      - Delayed pubeity when Destroy Hypothalamus
      - Precocious pubeity when they contain :- GnRH neurosecretory Cells

(3) **less common Causes**

- neoplastic → Teratoma.
- Congenital → long standing Hydrocephalus
- Traumatic → Trauma
- Inflammatory → meningitis

76

## (b) Peripheral gonadotropin Independent :-

[pseudoprecocious puberty] False:

- Causes :-

(1) ↑↑ Adrenal Androgen

(A) non-neoplastic ≡ Congenital Adrenal Hyperplasia.

- most common Cause in Boys
- Mechanism:
  - Deficiency in 21-hydroxylase enzyme OR 11-Hydroxylase enzyme
  - The Boy presente :- manifistations of pubeity Before age 9 yrs :
    - penile growth
    - pubic Hair growth
  - NO Testicular enLargment
- Diagnosis (1) High conc. of specific substrate [The target of the deficient enzymes]
  - 17-α-Hydroxy-progesterone (in 21-hydroxylase deficiey)

↳ 11-deoxy-Cortisol
(in 11-hydroxylase deficiency).

② High Steroid substrates → Can be suppresed By: Dexamethasone administration
↓
D.t its inhibitory effect on elevated (ACTH)

## ② ↑↑ Testicular Androgen ③

### ⊕ non-neoplastic (testo.toxicosis)

- Familial
- Autosomal Dominant
- Gonadotrophin independant (Low gonadotropins + High Serum Testosterone)
- Mechanism → mutation of genes encoding the **LH** Receptors on the **Leydig Cells** ⟹ produce:
  Testosterone autonomously in the absence of pituitary LH
- treatment:
  1- Medroxyprogesterone
  2- Ketoconazole (inhibit Testosterone synthesis)
  3- Spironolactone (Block testosterone Receptors)

### ⊕ neoplastic

[androgen-secreting Leydig Cell Tumours]

- incidence :- < 2% of testicular Tumours

### ⊕ Neoplastic conditions

↳ ⊕ androgen secreting Adrenal Tumors :-

- ⊕ occur at any age
- ⊕ Benign or malignant
- ⊕ associated è High levels of :-
  Urinary 17-Ketosteroids

**Mc Cune-Albright syndrome**

- triad:
  - ↳ Cafe-au-lait patches of skin
  - ↳ fibrous dysplasia of Bones
  - ↳ GnRH independent precocious puberty
- associated è other endocrine abnormalities :-
  - ↳ Hyperthyroidism
  - ↳ Hyperparathyroidism
  - ↳ Adrenal Hyperplasia.

④ • Caused By:
mutations in G protien on the adenyl Cyclase Receptors ⇒
Resultin: ⇒ activation of adenyl Cyclase System
Hyper⁺function of many Hormone-Secreting tissues

**Premature adrenache**

- Some Boys show: Benign - Self-limited
- Adrenal production of:- Dehydro-epiandrosterone sulphate DHEA-S
↓
Reach pubertal levels at early age.
- No Testicular enlargment
- No Therapy Required.
- only periodic evaluation



# II Delayed puberty:-

## A Physiological (constitutional)

- chch By: Delay in the pubertal manifistations till The age of 14 years (testicular volume < 4 mL)
- The Boy has No underlying pathology
- He will enter spontaneously ⇒ into normal puberty
- Carful evaluation: to exclude any Cause for pubertal delay
- General managment of any Case è pubertal delay:
  - (a) Investigations and ttt of any underlying pathological Cause
  - (b) After exclusion of underlying pathological Cause and Confirmation of Diagnosis of the physiological Cause
↓
The Boy will still need for active ttt è androgen therapy Beause of The following Reasons i-

1. The therapy → will induce the development of 2ry Sex chich → Should not be delayed offer The age of 14 yrs ⇒ to Save the Boy from the severe Psychosexual, Social Trauma
2. The therapy will Not Disturb The final adult Hight - Because The height gain near Puberty is relatively Small

3- There is evidence of significantly Reduced Bone density in adults ê past History of delayed pubeity → Could Not improved when the androgen Therapy given Later in life

© The therapy: intramuscular injection of Testosterone enanthate: 250mg every 4 weeks - for 3 months

↓ leads to:

Development of 2ry Sex ch.ch + physical growth

- No effect on final adult Hieght.
- Spontaenous pubeity → expected to occur 3 months after stoppage Therapy
- treatment Can be repeated ⇒ if Spontenous Puberty didnot Ocur.



# (B) Pathological (failed): ⑤

- less Common
- Prescence of → underlying pathological Cause.
- absconce of → Spontaneous pubeity

(C) Classification according to underlying Hormonal Disturbances:-

## 1 Hypogonadotrophic Hypogonadism

### ⓐ Hypothalamic Causes:

#### ✱ Hypothalamic Syndromes:

##### ⊙ Kallman Syndrome:

- Incidence: 1:10,000
- autosomal Recessive, OR X-linked Recessive
- The gene: Responsible for X-linked form:- [KALIG-1] → kallman syndrome inkeval gene-1

(6) - The Function of gene: to guide the migration of the GnRH neurons from their original site in the olfactory area to the hypothalamus during the intrauterine period

- The Syndrome Caused By:
Falure of this migration of these neurons to the hypothalamus (become devoid of them) with falure to secrete (GnRH)

- The same migratory defect affects the olfactory neurons ∴ with falure of the formation of olfactory bulb

- The end Result of this Syndrome is :-
- ↓↓ level of GnRH, FSH, LH
- The pt'n failed puberty ∴ testicular diameter less than 2 cm
- anosmia (defective sense of smell)
- Cleft lip - Cleft palate - Colour Blindness - Congenital deafness - Cryptochidisim - obesity - Osteopenia - gynechomastia

80

- The Treatment depends on:-
Replacement therapy ∴ pulsatile GnRH and Gonadotrophins
↓
to ensure → normal puberity
→ normal fertility

## ⊙ prader-willi Syndrome (H3D syndome)

- Caused By: hypothalamic falure to produce GnRH.
- Ch.ch By: Failed puberty (hypogonadism) hypomentia, hypotonia, Obesity

## ★ Other Hypothalamic Disorders:

male anorexia nervosa:
- Low level of FSH, LH, testosterone
- ↑↑ These levels after adminstration of GnRH or after weight gain

Hypothalamic Hormonal deficiency and Tumours

## (b) pituitary Causes:

### (A) pituitary Tumours:-

- **prolactinoma**
  - prolactin secreting adenoma of pituitary gland ⇒ falied puberty
  - If occur **before** puberty
    - infertility
    - erectile Dysfunction
  - If occur **after** puberty
    - D.t Hyperprolactinemia
    - may associated è :- pancreatic, parathyroid Tumours ⇒ Form :- **Familial multiple endocrine neoplasia (MEN) Syndrome**
- **Cranio-pharyngeoma**
  - **arise at**: The function between The anterior and posterior pituitary
  - as it **grows**: it Compresses The pituitary gland ⇒ Pituitary Dysfunction **with** subsequent :- Failed puberty
  - **Diagnosed By** :- MRI

## (A) other pituitary Disorders : (7)

- **Generalized pituitary Dysfunction**
  - **as in**: Cranial irradiation
  - **OR**: Infiltration as in :- Tuberculosis Sarcoidosis , haemochromatosis
- **Isolated gonadotrophin deficaency**
  - **as in**: Cases of ↓↓FSH LH , and **their** ⇒ Biological inactivity
  - **example**:
    - **"Fertile eunuch Syndrome"**
      - ↳ partial deficiency of LH
      - ↓
      - ptn have **Spermatogenic activity** may be Fertile.
      - ↳ This small amout of **LH** not sufficient for proper Development of Sexual ch.ch

# ⑧ 2 Hypergonadotrophic Hypogonadism

## ⓐ Testicular Causes :-

### ⊙ Klinefelter Syndrome :

- most common cause of testicular failure
- Result from: at least One extra X chromosome
- Karyotype: XXY
- eunchoidal features : present since Biith
- other features: → gynecomastia
  → tall stature
  → small firm testes of less than 2 cm in Diameter
- either Delayed or failed puberty
- treatment depends on: Androgen replacment

### ⊙ other Causes of Primary Testicular failure:

Trauma - infection - Irradiation - Vanishing testis Syndrome

## ⓑ Systemic Causes :-

- any chronic disoses During childhood

⇒ leads to: Delayed puberty independant of any Direct affection of the pituitary-gonadal axis -

→ Examples:

↳ malignancy - Regional enteritis - Rheumatoid arthritis - Un Controlled diabetes malnutrion - Renal - Cardiac failure Cytotoxic chem o Therapy

## Managment of pathological puberty

### ① Diagnostic Measures :-

1- Clinically → No testicular enlargment on repeated examinations every (3-6m)

2- Laboratory →

level of FSH, LH, prolactin, Testosterone → Reveal the Case of-

Hypergonadotrophic failed puberty →
If :- the FSH, LH are ⇒ High

- Low levels → Can't distinguish Between physiological and pathological level.
  ⇓
  in those pts ⇒ Repeated estimation over (6-12 m) ⇒ will show:
  ↳ Rise in their levels only in the group of Boys è Delayed puberty
  Not in those with Failed puberty
  ↳ These Boys will show ⇒ Nocturnal Rise of the LH levels

3- GnRH test ⇒ By the GnRH analoge which causes → Rise in FSH, LH
in Boys è Delayed puberty.
→ Reduce Response in the boys è failed puberty.

4- HCG Stimulation test ⇒
measure the testosterone level after HCG injection
↳ to test for the presence or absence of Functioning Testicular tissue.

## 2 Therapeutic Measures :

1- treatment of any underlying cause
2- Androgen Replacment therapy → for pts
- è pathological failed Pubeity
- needed for Long periods
3- Standard Regimens :-
↳ intramuscular injection of Testosterone enanthate 100mg at 6 weeks interval
For the 1st yr
- ↑↑ to 100mg at 4 weeks interval in the 2nd yr
- 250 mg every 4 weeks → in 3rd yr.
↳ Monitoring Bone age at 6M interval
(androgen therapy will Not disturb the Fertility)

Ch. 8

# Erectile Dysfunction



## ⊛ Psychogenic ED :-

- **ED** : persistant inability to obtain or to maintain penile erection sufficient for satisfactory sexual relations = Impotence
  - 90% of ptn e' ED → psychogenic
  - 10% of ED → underlying organic
  - Recent Diagnostic procedures →
    organic factors up to 50%
    psychogenic 50%
  - in Reality → most ptn have Combination of Both.
    ↳ explained By : the profound impact of ED on the well-being of most men at ever the Cause.
  - Example :-
    If Ptn have severe Oclusive Vascular Disorder → Organic Cause



- he may also hare severe performance anxiety OR 2ry loss of desire → D.t Repeated faliure and frustration Resulting from ED

## I Aetiological Aspects :-

### A Master and Johnson's classification :-

#### a. Developmental Factors :

1- Maternal oR paternal dominance :
the abnormal dominance By one parent → lead to :- abnormal sense of adequancy
Because : → lack of Respective father figure.
↳ faliure of identification e Dominant

(2) 2-Conflicted parent-child Relationship

3- -Ve Parents attitude toward sex

4- Traumatic childhood sexual Experiance :- punishment Dit infantile masturbation

5- Traumatic first Coital experiance with a prostitute

6- Homosexuality :- The female figure is Not exciting for him

7- Gender identity Disorders:

- Gender identity is the inner feeling of being a male or female.
- It Develop as a Reaction to the type of rearing or upbringing of the child
- It may be distubed in some families who rear their Boys as girls.

## b. Cognitive Factors

1- Sexual ingorance + misconcepts

2- Religious orthodoxy



## C. Affective (neurotic) Factors

1- Anxiety : • very common Cause
• anxiety about the penile Size, the erection The performance, the abiliy to satisfy paitners

2- Depression :-
• associated & inhibit Sexual Desire

3- Phobia :-
• Pregnophobia : fear of impregnating the female partner
• Venerophobia : fear of Catching Veneral disease
• Feminophobia : fear of any contact & female.

## d. Interpersonal Factors :-

1- poor Communications :
• very important cause of ED. • the female may be Non-cooperative
• She may be a dominant and orer directing Female

2- lack of physical attraction :-
• most males attracted By Certain features in the female :-
↳ Somatic :- Body Built, eye color

↳ psychological ↳ Behavioural
↳ inanimated :- as dressing

3- Divergent sexual preference:-

- The male may Demand Certain abnormal Critriea in the female → Dressing / → altitude
- This may be Not found in his wife
- This occur in male è premarital relations with prostitutes

4- Hostility :

- absence of love and good personal Relation ship Betuen the paitners

5- Disgust :-

- when female paitner neglect her personal Hygeine → lead to :- inhibited Sexual arousal

## B) Lue's classification :-

- Type 1 :- Anxiety : → performance anxiety → sexual phobias → widower's syndrome
- Type 2 :- Depression : Drugs, Diseases associated è Depression
- Type 3 :- Marital Disorders :- Conflicts and disturbance in marital relationships
- Type 4 :- Misinformation

Sexual ignorance about the anatomy or physiology of sex → inhibit ED
This more apparent when male is ignorant about the Normal or physiological changes in his erection with age → so he develop sever performance anxiety

- Type 5 :- psychotic Disorder

apparent in personality Disorders , Sexual perversions , psychatric Disease .

### Widower's Syndrome

- male over 50 yr • had prolonged period of absent Sexual activity in Conjunctione Lengthy and Fatal illness of his wife (as Cancer) →

During this period → his wife become more dependening on him because of her illness.
+ he had sexual inhibitions and avoided to Do the marital Relations with his Sick wife
- After his wife Dies → He gets married to another wife.
[he usually complain of psychogenic ED]

## C Mechanism of Psychogenic ED

- the following 2 mechanism may partially explain the Contro-versal issue about (not all males with these etiological factor Develop psychogenic ED)

### ① Central mechanism:

Psychogenic ED → Result from inhibition of the spinal erection Centers → Resulting from exaggerated supraspinal inhibition

### ② Peripheral mechanism:

Ptn è psychogenic ED → may have Significant High levels of → Serum Norepinephrine Than in the normal Control.

## 2 Diagnostic Aspects

### ① Classical approach:

- Classic scheme for all ptn è ED not only for psychogenic ED.

① start Diagnosis è Detailed History :- Detailed physical examination (general - genital)

② then → Differentiate Bëlween Organic and psychogenic Factors

Done By:
- ICI test.
- nocturnal monitoring of erection By Rigiscan

(3) Detect the Cause of ED :-

↳ Complete medical, endocrinal investgations to detect any systemic Disease or endocrinopathy

↳ Neurophysiological study → for detection of neurological Causes.

(4) penile arteries evaluation :-

↳ Duplex examination
↳ arteriography
↳ Cavernosometry - Cavernosography for penile veins evaluation.

(5) should noted that there is NO single test that is Completely accurate in the diagnosis of ED

(6) the first golden Rule is to perform a battery of multiple tests → For the proper Diagnosis of ED

(7) the 2nd golden Rule in the Diagnosis of ED Based on the findings of who demonstrated that History and physical examination Have 95%. Senstivity in Diagnosing Organic ED. , Specificity 50%.

(5)

↓

so Detailed and Carful History and examination → will Direct the physicin to the most useful and economic investigation and eliminate the performance of unnecessary, expensive or invasive tests

Due to their very High Sensitivity (95%) in suspecting the aetiology of ED.

## (2) Ptn's Goal Directed Approach :

(1) First level investigations are Done for Every ptn that ~~have~~ include: medical, psychosexual History

(2) Examination and Basic laboratory investigations

(3) Followed By → Discussion of available non-specific therapeutic options:
- Oral, intraurethral Drugs
- Sex therapy

(4) if the ptn Satisfied of any of those therapeutic modalities → NO Further workup to be Done.

(5) If ptn's Goal → is to detect and treat the exact Cause of his ED ⇓

the 2nd level investigations will Be Done → all the investigations in classical approach

(6) the value of this alternative Apprach → that is Directed mainly By the goals or the needs of each individual ptn is to save a Large group of ptns è ED from unnecessary expensive and invasive investigations.



## a. Detailed History :-

### 1- Medical History :

* Age : tripled from 5% to 15% Between age of 40 and 70 yr.
* Behavior :- alcoholism → lead to ED
opiates addiction → lead to ED
* Cigarette smoking :- in ptnè Heart Disease smoking associated è Complete ED
* Diseases + Drugs :- Heart D, Diabetes Hypertension, many Drugs → associated è ED

### (2) Psychosexual History :-

- Sexual Development + education
- Erectile Dysfunction
- other sexual Dysfunctions :-
  - Desire Disorders
  - ejaculatory Disorders
  - Orgasmic Disaider
  - Female paitner sexual dysfunction
  - sexual Pain

- DD between :

| | psychogenic | Organic |
|---|---|---|
| -Onset | Acute | Gradual |
| -Circumstance | situational | Global |
| -Course | variable | Constant |
| -non-coital erection | Rigid | poor |
| -psycho-sexual problem | Long History | 2ry |
| -Paitner Problem | at the onset | 2ry |
| -Anxiety | 1ry | 2ry |

- Psychometry :
- Specialaized type of questionnaires That help to study and Detect Specific psychosexual disorders.
- important psychometric tests include the following 3 test:

1- Minnesota Multiphasic personality Inventory :- (7)
- for detection of personality Disorders

2- Beck Depression Inventory :-
- for detection of depression disorder

3- Short marital adjustment test :-
- to Detect marital Disorders

(A) morning erection :-
- Sleep-associated erections that may be felt By the ptn in the morning → give an impression of intact erectile mechanism and the ED is mostly Psychogenic
- the reliance on his finding may be misleading as the ptn may feel tumescence But the Rigidity is Not enough for Coitus
↳ in this case → the ptn wrongly Diagnosed as Psychogenic ED
- Some men may Have : intact morning erection . But they are Not aware of them → they are wrongly Diagnosed as Organic ED

## ② b. Detailed Examination :-

### 1. General examination:

- **Detection of medical or Surgical disorders**
  - Blood pressure - peripheral pulses
  - detect the fitness of ptn for possible Surgical ttt for his ED
- **Detection of Hormonal Disorders :**
  - Absent or underdeveloped 2ry sex ch.ch (indicate Low androgen level
  - The following is noted :-
    - ↳ Temporal Hair Recession and The moustache, the Beard, the Body Hairs
    - ↳ the Body proportions :- show eunuchoidal OR Hypogonadal features that is defined as :- The **Span** (The distance Between the Stretched arms)
      - 5cm OR more in excess of the Height and the Lower Body segment (Distance from the soles to pubis)
      - 2 cm OR more in excess of the upper Body segment (Distance from head to pubic)
  - these abnormal proportions Result from :-
    - ↳ Delayed fusion of Long bone epiphyses Due to Low androgen level
  - there may be **Gynecomastia**
  - there may be **Anosmia** in ptne Kallaman syndrome.

### 2- Genital Examination :

- **Penoscrotal examination :-**
  - The **penis** is inspected for → Size
    - ↳ site of Urethral meatus
  - palpated for → tenderness OR plaques
  - gently stretched
  - The **Scrotum** examined for :-
    - ↳ large hernias ↳ Hydrocele
    - ↳ Testicular size (Reduced in ptne Hypogonadism)

- Prostatic examination :

- Digital Rectal examination of prostate is essential step → to assess the prostatic size + Consistency

Ⓐ if there is benign prostatic Hyperplasia
  ↳ Urine flow Rate is determined.
  ↳ The ptn is warned that the Androgen Therapy may lead to → Flow Obstruction

Ⓐ most important is to find Prostatic nodules
  ↳ possibility of early prostatic Cancer
  ↳ Prostatic specific Antigens (PSA) Should estimated as a serum maiker for prostatic Cancer
    ↳ prostatic biopsy under transrectal ultrasound control.
  ↳ Androgen therapy is Absolutely Contraindicated → to avoid flaring of the existing prostatic Carcinoma

- Preservation of reflexes and Sensations :-

- initial Screening for Reflexes and sensation in the genital area. Done By the following :-

↳ Scrotal Reflex :-
- application of Cold object to the Scrotum → Contraction of the dartos muscle at that side

↳ Cermasteric Reflex :
- Stroking of the upper thigh → Contraction of Coremastric muscles at that side
- Testicular elevation

↳ Superficial anal Reflex :-
- Stroking of the perianal skin → Contraction of the superficial anal sphincter

↳ Deep anal Reflex :-
- Introduction of the gloved finger into anus → Contraction of Deep anal sphincter

↳ BulboCavenous Reflex :
- Squeeting of the glans penis → Contraction and tightening of anal sphincter

## C Differentiation Between Organic and psychogenic Factors :-

① intracavernous injection (ICI) test (Real Time erection monitoring).

- the ptn's psychogenic ED → have normal Response. During this test
- ptn's Organic ED → Have abnormal OR NO Response
- The ICI test → may give abnormal Results in some ptn's psychogenic ED. Due to excessive psychic stress
- about 20% of ptn's arterial Causes For ED → may give Normal Results During ICI test

② Nocturnal erection monitoring :-

↳ ⓐ Sleep laboratory monitoring

- The normal men has nocturnal erections
- During sleep → the psychological Factors may interfer & erection During sleep The Day Time → are absent
- So → monitoring these nocturnal erections → Help to Differentiate Organic from psychogenic ED
- the initial Formal testing was performed in Specialized sleep laboratory :-
  - ↳ Including Sleep monitoring By :-
    - ↳ electroencephalogram
    - ↳ electro oculogram
    - ↳ electromyogram
  - to exclude sleep Disorders as → sleep apnea, → nocturnal myoclonus
    - ↳ the effect of anxiety OR Depression on sleep.
  - all these Disorders may lead to False Results
- erection monitoring methods :
  1- ↳ stamps
  2- ↳ snap gauge Bands wrapped around the penis to break at Certain points at penile Tumescence

3. ↳ Intermittent Rigidity Test →
waking the ptn During nocturnal erection and measuring the external axial Force against the glans penis ⇒ leads to buckling (collapse of erection)

- the High costs of sleep laboratory testing and the unnatural waking of ptn from sleep ⇒ leading to → Anxiety that interferes è the Results . are the major Disadvantages ↑
- they can't detect the frequency and Duration of the nocturnal erection episodes

↳ ⓒ RigiScan monitoring :-

- Advantages :- monitoring • the Rigidity and tumescence of the penis
  - the number and the Duration of each nocturnal erection





- the first night effect : means disturbed sleep in the first night that necessities 3 nights monitoring is Relatively less with Rigiscan as compared to the formal sleep laboratory
- its Ambulatory nature obviates the need for formal sleep laboratory as its more economic , Convenient
- Consist of the following :-

ⓐ Data Logging unit :

- Strapped to the ptn's thigh During sleep with its 2 Loop . placed around the Base and the tip of the penis
- these 2 Loops are Designed for Continouse measuring of changes in the penile Tumescence and Rigidity During Night upto 10 hrs

ⓑ MicroComputer + printer :-
the Data from the First unit are introduced and printed in graphic form

- The Normal finding of Rigiscan monitoring in potent males OR male è psychogenic ED include the following :-

1- the number of erection per night (about 4-5 episodes)
2- Duration of each one more than 30 minutes
3- ↑↑ in penile Circumference (Tumescence) of more than 3cm at the Base and 2cm at the tip and more than 70% Rigidity at Both the tip and the Base

↳ these findings may show variations in → Advancing Age è Reduced erection

- the Abnormal Finding in Rigi Scan in males è Organic ED include following:

1- Absent erectile episodes
2- Shortened erectile episodes
3- Low amplitude of Rigidity

95

4- Dissociation of Rigidity Between the tip and the Base of the penis

5- uncoupling Between Rigidity and Tumescence.

- the Disadvantages of Rigiscan:- are apparent in some ptns who show Abnormal finding despite of the Absconce of organic Causes for their ED.

↳ this may be Caused By: → anxiety ① Depression ②

③

- other sleep Related Disorders as
  ↳ sleep apnea
  ↳ nocturnal myoclonus

- Rigiscan may show Normal finding in Some ptns è Mild ED Because:- it measures the Radial Rigidity and Not axial Rigidity → That may Sometimes show poor relation to each other

- in Conclusion :- Rigiscan can be very Useful Device specially when show Normal findings in ptn è suspected psychogenic Causes → to Confirm the Clinical Diagnosis
  ↳ Because it Can save all those ptns from :- unnecessary , expensive and invasive Vascular Investigations
- it shows Abnormal Finding in ptns è :- Confusing Clinical Diagnosis
  → Formal Sleep Laboratory Study may indicated to exclude :- Sleep Disorders

### d. Detection of the Underlying Causes :- (later)





# 3 Theropeutic Aspects :-

## (A) Master & Johnson principle of Sex Therapy :-

### a. Basic principles :-

- Sex :- not only mean intercouse OR part of Reproductive purpose , it can be exciting and satisfying .
- Sex :- is Not something that man does to women its Something than man + women doing Together
- The Causes of Sexual Dysfunction :- are common and Not Releated Usually to deep psychopathology
- The origin and Causes of sexual Dysfunction : Can't be always detected - But the ttt Can be proceed Successfuly
- Using Past Peelings + Behaviour to predict :- The underlying Causes :- is Not helpful as it may limit the freedom to change

- there is No such thing as Uninvolved paitner when Sexual Dysfunction exist
- it's Not Useful to blame the pt or paitner about:- his or her Responsibility
- Assuming the Responsibility to onself rather than Delegating this Responsibility to one's paitner → often effective in Correction of the Sexual Dysfunction
- Sex : Highly intimate Form of Communication and relationship
  So → it is Highly Releated to the other aspects of Relationship Between paitners
- Developing the awareness of the feeling of other paitner → will improve their Relationship
- The presence of Both paitners During the therapatic Sessions → help the Therapist to detect many aspects of their relationships.





## b. Basic techniques :

- Cotherapy - Dual therapy ⇒ there are 2 therapists (male - female) that are dealing with the couple
  as male paitner → Communicate easily ē the male therapist and female → Communicate easily ē female Therapist.
- Coordinated therapy →
  The coordination Between the Andrologist and psychiatrist.
- The starting Sessions include:
  - Detailed History
  - physical examination

  (the therapist can detect some sexual conflicts or wrong ideas of the partners)
- Sensate Focus Sessions :- Started
  - Sensate focus → Based on the principle that almost all sexual Dysfunction are Varying Degrees of Anxiety of performance →

that may worsen The sexual Dysfunction. leading to → more Anxiety

- the Aim of senate Focus instructions:-
  to allow → gradual sexual exposure
  to help → the partners to Concentrate on Sexual sensations and satisfaction Rather than sexual performance
  ↓↓ performance anxiety, pressures.

- The therapists → give Instruetions to couples along sessions to perform Sensate focus program at their Home as follows:

- Sensate focus (I):- The paitners are instructed to Stimulate each other By kissing - pitting - caressing But e` complete exclusion to Genital area
  - Concenhate only → on Satisfaction and pleasure with free Communication so that each paitner can guide the other one about the excitatory and inhibitory behavior

- Sensate Focus (II):-
  The same previous step But her Genital Stimulation is Allowed
  But intromission Not Allowed.

## C. Specific Techniques :-

- after complete above steps → Intromission is allowed → if the female feels that there is Rigid Reaction only.
  - During this stage → The female instructed To gently Stimulate the penis if erection Stated to be less Rigid → till it become Rigid again
    ↳ The Aim of this important step is to → Assure the male that he can Regain his erection many times even after He lost it.
  - when intromission is allowed → It Should be in (Female Superior position)

and she can guide the penis in her vagina → to ~~to~~ his performance pressures and Anxiety → Helping him to stop his Spector role about his erection.

- Intercourse is Stopped Before the Orgasm reached During this stage By Manual Stimulation

- Finally: intercourse may be allowed up to orgasm in the female superior Then In male Syperior position.

## (B) Kaplan's principles of Sex Therapy:

- Kaplan introduced The Concept of: inhibited Sexual desire that is more difficult to treat as it's usually associated è deeply-seated psychopathology.

- Kaplan stated That Sex therapy is effective in Sexual problems Caused By Mild or superficial level of anxiety and conflict

- For Deep level conflicts → more prolonged and deeper form of Sex Therapy.



## (C) Behavioural Therapy

- it depends on:- the piinciples of Master and Johnson with Few differences as → its more Concentration of
  - desensitization Techniques (To Reduce The anxiety)
  - Relaxation Techniques (specific Breathing + muscle excersises to Reduce the tension)

## (D) physical lines of Therapy

- Some oral erectogenic Drugs as
  - Sildenafil (viagra)
  - phentolamine (vasomax)
  - yohimbin

- may be effective in some ptns with Psychogenic ED
- ICI therapy in some ptns e` Recent pyychogenic ED → Due to :- Anxiety
  ↳ may help those ptns By enabling Them to Perform intercourse and enhancing their Self Confidence & decreasing their anxiety

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Old concept of performing Prostatic Smear → for the number of pus cells and exposing the already stressed ptn e` ED to (Hard-lengthy -unhuman Sessions of- Prostatic massage and prolonged Haimful Antibiotics should be discouraged and Condemned.
- Unfortunatly → This is still practical By alot of- Specialists
  - Its neither ethical Nor Scientific to Continue To Do these histrical Procedures in Mgut of ptne ED

Ch.9

# ⭐ Endocrinal ED :-



- progressive ↓↓ in the free Testosterone level è age
  - → associated è ↓↓ libido.
  - → ↓↓ frequency of erections
  - → ↑↑ incidence of ED
- The Different endocrainopathies Related to ED → Classified according to level of endocine glands as follows :-
  - A. Hypothalamic Disorders
  - B. Pituitary Disorders
  - C. Thyroid Disorders.
  - D. pancreatic Disorders
  - E. Testicular Disorders

## (A) Hypothalamic Disorders :

- may lead to Hypogonadotrophic Hypogonadism Ch.7

## (B) Pituitary Disorders :

Lead to → Hypogonadotrophic hypogonadism (101)

OR → Hyperprolactinemia

↳ if è Hyperprolactinema → is an Early manifestation of Pituitary Tumours.

- associated è → loss of libido
  - → gynecomastia.
- → will lead to → Low testosterone level Through the inhibitory effect of prolactin on GnRH
- The main effect of Hyperprolactinemia → ↓↓ Sexual Desire and the associated ED is either psychogenic or 2ry to Loss of desire

## (C) Thyroid Disorders :-

### ⭐ Hyperthyroidism ⭐

- è clinical manifestations as
  - → weight loss
  - → Tachycardia
  - → Heat intolerance

② -Laboratory evidence of High tri-iodothyronine ($T_3$) and tetra iodothyronine ($T_4$)
Low Thyrosid Stimulating Hormone (TSH)

- The Causes of ED include :-
  - High (SHBG) → Low level of free bioavailable Testosterone - (although total level is Normal)
  - High Oesterogen → Due to ↑↑ peripheral aromatization of testosterone into estrogen.
  - The End Result is : → ↓↓ sexual Desire
    → Gynecomastia
    → ED
- The treatment :- Directed to Treat Hyperthyroidism By medical OR surgical methods.
- Androgen Replacement → Not effective and may aggrevate the gynecomastia
- Hyperthyroidism and Androgen Resistance Syndrome are 2 conditions in which endocrine ED is Not associated ē Low androgen level
this is explained By ↓↓ free testosterone in Case of Hyperthyroidism , ↓↓ Action of testosterone in Case of androgen resistance

## ⭐ Hypothyroidism ⭐ ②

- clinical manifestations:
  - weight gain
  - bradycardia
  - Cold intolerance
- Laboratory evidence:
Low $T_3$ , $T_4$ . High TSH
- The Causes of ED:
High prolactin level
- This Hyperprolactinemia Related to High level of the Hypothalamic thyrotropin releasing Hormone (TRH) → produced to Stimulate the Secretion of TSH , $T_3$ , $T_4$
- The treatment depends on:
Replacment therapy with
L- thyroxine .

# D Pancreatic Disorders :- = DM

## ☆ Incidence , presentation in DM :

① DM is the most common endocrinologic Disorder That Cause ED Through :-
- ↳ neurological
- ↳ Vascular
- ↳ endothelial
- ↳ psychogenic Complications

② The incidence of ED → 3 times Higher in the diabetic males than in non-diabetic

③ The incidence of ED ↑ → from 15% at age 30 yrs to 50% at age of 60 yr. among the diabetic males

④ The Risk Factors → associated è Higher incidence of ED among the diabetics :-
- ↳ Age of ptn
- ↳ alcohol intake
- ↳ Duration of DM
- ↳ Retinopathy
- ↳ neuropathy
- ↳ intermittent claudications

⑤ the Clinical presentation in ED DM :- as follows :

- Sexual Desire → preserved
- gradual ↓↓ in Rigidity of erection followed By ↓↓ in the frequency of morning erection
- 2ry psychological stress may aggrevate The condition and transform it from partial ED to Complete ED
- ED in diabetics associatedè : Retrograde ejaculation Dt → Bladder incompetence as a Result of diabetic neuropathy
- Diabetic males may presentè Abnormal nocturnal erection studies despite that they have normal Gital Reaction
- less Common Forms may occer in ED :-
  - ↳ Acute onset of ED associatedè at the same time with poor diabetic control and sever diabetic symptoms as :
    - Hunger - thirst - polyurea
    - weight loss .

④ • it may be associated è loss of desire
( This Type ch·ch By :- Rapid improvement in the erection and desire → once the diabetes is Controlled
( this Reversible type of ED is different from the Classical ED among the diabetics which is ch·ch By being :- Reversible only in 8.5% of them
Ceuen after Diabetic control)

## ④ Pathogenesis of ED in DM

### 1- Neurological Factors:

- ED in DM may Related to diabetic Somatic and autonomic neuropathy.
- usually associated è :· neuropathic Bladder Dysfunction as the nerves of the penis + Bladder have Common origin

### 2- Vascular Factors:-

- Different types of Vasculopathy may Lead to Diabetic ED





- The first type: Diabetic Microangiopathy
ch·ch ↳ thickening of the Basment membrane of the small Blood vessels → Stenosis
- Atherosclerosis : Due to associated Hypercholesterolemia.
- arteriosclerosis : Dit associated HTN

### 3- Cavernous Factors :-

- ↓↓ neurotransmitters levels in the Cavernous Tissue as VIP - NO
- ↑↑ Corporeal smooth muscle tone that Prevent proper Sinusoidal wall Relaxation

### 4- Metabolic Factors :-

- The pathological effect of tissue glycosylation By the advanced glycosylated products → may lead to ED in the diabetics

### 5- Psychological Factors:-

- Partial ED : Cause sever performance anxiety leading to Complete ED

## ✱ Managment of diabetic impotance:

### ① Diagnosis:

- according to classical diagnostic approach
- Special emphasis is made on the diagnosis of Some Specific diabetic Complications:-
  - Retinopathy
  - nephropathy

as predicator For diabetic ED

- investigations For neurologic + Vascular Causes of ED

### ② Treatment:

#### Early stage ; (prevention Better Than Cure)

✱ Strict Diabetic Control is essential preventive line of ttt, as this Control leads to marked Reduction in the incidience and progression of Both
- microangiopathy
- neuropathy.

- The Value of This control is to prevent the occurence of ED as once the Organic diabetic ED is developed ⇒ Irreversible
- Sex therapy helps to ↓↓ anxiety and improve Some ptns

#### Late Stage of the disease

✱ The ptn whoshows → Organic ED By investigations → Can try first non-invasive Therapy
- if the Response is unsatisfactory → They Can shift to ICI Therapy
- if there still No Response → penile implant operations.
  - This operation associated è 2 complications
    - 1st → greater liability of Erosion and Extrusion of the Device if there is Sever neuropathy
      - prevented By: Avoidance of implantation of Too Long Device.

- 2nd → greater liability for infection.

(6) ↳ prevented By • strict Aseptic Conditions
• proper Diabetic Control

That Better evaluated By glycosylated Haemoglobin estimation.

## (E) Adrenal Disorders :-

### Hyperadrenalism

- High level of Cortisol → Caused By :-
  - ↳ Cushing disease 2ry to pitaitary Tumors
  - ↳ exogenous glucocorticoid intake
- The pt presente` :-
  - ↳ moon face ↳ trunkal obesity
  - ↳ Low sexual desire ↳ ED
- The ED → may be Caused By : pituitary Dysfunction Resulting From :
  - ↳ pituitary Tumour OR
  - ↳ From Direct effect of Cortisol (6)
  - ↳ Direct inhibitory effect of Cortisol on Testicular function
- the treatment should Directed toward the Cause of ↑↑ Cortisol level

### Hypoadrenalism

- Adrenal insufficieny → Causes Generalized debilitated state
  - ↳ That interfere` normal Sexual Function
- The pt presente` • Rapid loss of 2ry Sex ch·ch • Fatigue • weight loss • Hypotension
- Both Testicular + adrenal Function tests Should be Done in those Case:

## (F) Testicular Disorders:-

- many Congenital - acquired conditions lead to → Primary Testicular Falicure.
  OR → Primary Hypogonadism
- ↓↓ Androgens → may Releated to Advanced age.
- The Basic Rule is that Androgen Replacment therapy is Not effective in imporving sexual Desire and performance. ✗

  except: in ptn e` Documented androgen deficaency
- Oral and injectable Androgens → are Not physiological ways in delivering androgen
- New transdermal Androgen delivery system (7)

  may be more physiological as they produce → serum levels similar to the normal biological rhythms

### ● polyglandular Autoimmune disease:-

- autoimmune Disease → Transmitted as an autosomal Dominant Disease with Circulatory Antibodies against many endocrine glands That Cause multiple endocrine Falicure
- less common in male
- in addition to Testicular falure, there may be
  - Hypothyroidism
  - Hypoparathyroidism
  - Insulin Dependant DM
- The Disease Has been differentiated from panhypopituitarism.